

XV. *Note on the British Species belonging to the Genus Acanthosoma, Curt.* By W. S. DALLAS, Esq., F.L.S.

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THE genus *Acanthosoma*, established by Curtis in 1824, upon the *Cimex hæmorrhoidalis*, Linn., includes five European species, of which only four are found in this country. Notwithstanding the small extent of the genus, however, the synonymy of the species contained in it is by no means settled, and that of two of them in particular is in a very confused and unsatisfactory state; almost every author, in fact, who has had occasion to touch upon them, having departed more or less from all that had been previously published on the subject. Under these circumstances I have endeavoured, by careful examination and the inspection of the Linnæan cabinet, to arrive at some satisfactory conclusion on the subject, and I hope in the present paper to be able to set the matter on a more secure basis than it has hitherto occupied.

Genus ACANTHOSOMA.

*Cimex*, p. Linné, De Geer, Fabricius, Schrank, Fallen.

*Pentatoma*, p. Latreille, Le Pelletier et Serville.

*Acanthosoma*, Curtis, Herrich-Schäffer, Burmeister, Amyot et Serville, Sahlberg.

*Clinocoris*, Hahn.

Head rather small, with the central lobe as long or longer than the lateral ones. Antennæ five-jointed. Rostrum slender, reaching the base of the abdomen. Membrane of the elytra with longitudinal nervures. Sternum with a large central keel, which is attached to the mesosternum, and projects forward nearly to the base of the head. Abdomen with a long spine at the base, which runs up at one side of the sternal keel. Scutellum triangular, with the sides nearly straight. Tarsi of two joints.

Amyot, in his "Entomologie Française," published in the "Annales de la Société Entomologique de France," having made use of characters drawn from the shape and proportionate size of the different parts of the external sexual organs, to assist in the determination of the species, some account of the structure of these parts may be acceptable to the British Entomologist, although the species present a sufficiency of obvious characters

to enable them to be easily distinguished from one another, without having recourse to any purely sexual character. The structure of the male organs, moreover, is very peculiar, and differs considerably from the form usually observed throughout the *Pentatomidæ*. This peculiarity consists principally in the great development of those organs which in other genera are concealed beneath the ordinary anal plate, which usually closes the aperture of the last ventral segment, but here becomes, as it were, a seventh abdominal segment, and the space thus left at the apex of the abdomen is occupied by the enlarged sub-internal organs above mentioned, of which the dorsal portion is frequently more or less produced on each side, and in some exotic species projects considerably beyond the apex of the body. The female organs consist, as in the other genera of the family, of five principal plates, namely, two basal (*pièces antérieures*, L. Duf., *pièces basilaires*, Amyot), divided from each other by a longitudinal suture, and occupying the central emargination of the last ventral segment,—two apical (*pièces postérieures*, L. Duf., *pièces dernières*, Amyot), forming the posterior and dorsal portion of the whole apparatus,—and two intermediate (*pièces intermédiaires*, L. Duf. and Amyot), which separate the basal from the apical plates, but do not meet in the centre, the small notch thus left being occupied by a small central plate, which is probably the apex of some internal organ.

*A. Head pointed in front, central lobe projecting beyond the lateral. Margins of the abdomen scarcely projecting beyond the elytra, not variegated with black.*

*a. Basal joint of the antennæ projecting beyond the apex of the head.*

Sp. 1. *Acanthosoma hæmorrhoidale*.

*Cimex hæmorrhoidalis*, Linn. F. S. 925 (1761), and S. N. i. 720, 35 (1767); De Geer, Mém. iii. 254, 3, pl. 14, fig. 7 (1773); Schr. Enum. Ins. Aust. 267, 515 (1781), and F. B. ii. 70, 1099 (1801); Fab. E. S. iv. 98, 76 (1794), and S. R. 160, 27 (1803); Don. Brit. Ins. vii. 5, pl. 218, fig. 2 (1798); Wolff, Ic. Cim. 10, tab. 1, fig. 10 (1800); Fall. Mon. Cim. 44, 3 (1807), and Hem. Suec. 23, 3 (1829).

*Cimex pabulinus*, Harris, Exp. Eng. Ins. 88, pl. 26, fig. 2 (1776).

*Pentatoma hæmorrhoidalis*, Le P. et Serv. Enc. x. 53, 1 (1825).

*Acanthosoma hæmorrhoidale*, Curtis, B. E. I. 28 (1824); H. Schöff. Nom. Ent. 57 and 94 (1835); Burm. Handb. ii. 360, 3 (1835); Am. et Serv. Hém. 154, 1 (1843); Kolen. Mel. Ent. iv. 58, 186 (1846).

*Clinocoris hæmorrhoidalis*, Hahn, Wanz. ii. 71, tab. 52, fig. 158 (1834).

*Acanthosoma*, Amyot, Ann. Soc. Ent. Fr. 2me. ser. iii. 456, 72 (1845).

Geoff. Ins. i. 465, 63.

Stoll. Pun. 31, pl. 6, fig. 44.

Above pale olive or brownish green, rather strongly punctured with black. Thorax with the posterior angles spinous, black and tinted with red. Membrane transparent, spotless. Body beneath and legs greenish, yellowish or orange red; anus red. Antennæ pale green or reddish brown, with the apex brown.

Length  $7\frac{1}{2}$  lines.

This species is the largest in the genus. In the male the posterior margin of the anal plate is not denticulated. In the female the basal plates are smaller than the apical, and form a somewhat irregular circle with the intermediate plates; the intermediate plates are much smaller than the basal.

Sp. 2. *Acanthosoma dentatum*.

*Cimex dentatus*, De G. Mém. iii. 260, 7 (1773).

*Cimex hæmagaster*, Schrank, Enum. Ins. Aust. 270, 520 (1781).

*Cimex collaris*, Fab. S. R. 170, 83 (1803).

*Pentatoma Stollii*, Le P. et Serv. Enc. x. 53, 2 (1825).

*Cimex lituratus*, var.  $\beta$ . Fall. Hem. Suec. 24, 4 (1829).

*Acanthosoma hæmagaster*, H. Schöff. Nom. Ent. 57 and 94 (1835).

*Acanthosoma hæmatogaster*, Burm. Handb. ii. 360, 4 (1835); Kolen. Mel. Ent. iv. 59, 187 (1846); Sahlb. Geoc. Fenn. 32, 1 (1848).

*Hæmatogaster*, Amyot, Ann. Soc. Ent. Fr. 2me. ser. iii. 456, 73 (1845).

Stoll. Pun. 129, pl. 33, fig. 229.

Above pale olive green, rather finely punctured with black, with the inner and apical margins of the coriaceous portion of the elytra, the posterior margin of the thorax, and the base of the scutellum, more or less tinted with red. The lateral angles of the thorax are prominent, and there is a smooth, transverse band, generally of a yellow colour, close to the anterior margin of the thorax. Membrane transparent, with a large brown spot on the

outer margin about the middle. Body beneath and legs yellow; the apex, and sometimes the whole of the abdomen, is reddish. Antennæ yellowish, or greenish at the base, with the two apical joints brown. Length 6 lines.

In the male, the anal plate is large and distinctly denticulated on the posterior margin, where it also bears two strong brushes of hairs; in the female the basal plates are transverse, forming an irregular oval, and much larger than the apical; the intermediate plates are nearly as large as the apical and reach their posterior margin; the central plate is larger than in the other species, and appears to be divided longitudinally.

Amyot (Ann. Soc. Ent. Fr.) refers the *Cimexagathinus*, Fab. to this species, but it is evident both from the description given by Fabricius in the "Entomologia Systematica" and the figures quoted by him in the "Systema Ryngotorum," that the insect described is identical with *Cimex griseus*, Linn.

A specimen of this insect stands in the Linnæan collection with the name *Cimex interstinctus* attached to it. I am inclined to think, however, that it has been placed there by Linnæus in error, probably some time after the publication of his description of that insect, for it is impossible to make it agree in any respect with the characters given in the "Fauna Suecica." I have referred the *Cimex interstinctus*, as a synonym, to the *Cimex griseus*, with which Linnæus says it agrees in size, appearance and colour, differing only, in fact, in having the upper surface of the abdomen red, with the base black, instead of entirely black.

*b. Basal joint of the antennæ not passing the apex of the head.*

Sp. 3. *Acanthosoma lituratum*.

*Cimex lituratus*, Fab. E. S. iv. 114, 134 (1794), and S. R. 170, 84 (1803); Wolff, Ic. Cim. 14, tab. 2, fig. 14 (1800); Panz. F. G. 40, 19; Fall. Mon. Cim. 44, 4 (1807), and Hem. Suec. 24, 4 (1829).

*Acanthosoma picta*, Newman, Ent. Mag. i. 287 (1833).

*Acanthosoma lituratum*, H. Schöff. Nom. Ent. 57 and 94 (1835); Kolen. Mel. Ent. iv. 60, 188 (1846).

*Acanthosoma clypeata*, Burm. Handb. ii. 361, 7 (1835).

*Saranus*, Amyot, Ann. Soc. Ent. Fr. 2me. ser. iii. 458, 75 (1845).

Above pale green, thickly and rather finely punctured, with a broad red band along the inner and apical margins of the coriaceous portion of the elytra, and sometimes a reddish band across the posterior portion of the thorax. The red portion of the

elytra and the base of the scutellum have some patches of black punctures. Membrane hyaline, with a brown spot near the middle of the base, and a brown band across near the middle. Body beneath and legs yellowish or pale green. Antennæ yellow, pale green or reddish, with the apex dusky. Length 5—6 lines.

In the male the anal plate is broadly emarginate at its apex, but not denticulated; in the female, the basal and intermediate plates form together a nearly perfect circle; the basal plates are larger than the apical, and these again larger than the intermediate.

*B. Head rounded in front, lateral lobes as long as the central. Margins of the abdomen projecting beyond the elytra, variegated with black and orange.*

Sp. 4. *Acanthosoma griseum*.

*Cimex griseus*, Linn. F. S. 926 (1761), and S. N. i. 721, 43 (1767).

*Cimex interstinctus*, Linn. F. S. 927 (1761), and S. N. i. 721, 44 (1767); Fab. E. S. iv. 116, 141 (1794), and S. R. 171, 88, (1803).

*Cimex Betulæ*, De G. Mém. iii. 261, 8, pl. 14, fig. 9 (1773).

*Cimex agathinus*, Fab. E. S. iv. 114, 133 (1794), and S. R. 170, 82 (1803); Fall. Mon. Cim. 45, 5 (1807), and Hem. Suec. 24, 5 (1829); Zett. Faun. Lapp. i. 464, 4 (1832), and Ins. Lapp. 260, 4 (1840).

*Cimex achatinus*, Wolff, Ic. Cim. 58, tab. 6, fig. 55 (1801).

*Acanthosoma agathinum*, H. Schäff. Cont. Panz, F. G. 114, 10, 11, and Noni. Ent. 57 and 94 (1835).

*Acanthosoma grisea*, Burm. Handb. ii. 360, 6 (1835); Sahlb. Geoc. Fenn. 33, 2 (1848).

*Acanthosoma interstinctum*, Kolen. Mel. Ent. iv. 61, 189 (1846).

*Mearus*, Amyot, Ann. Soc. Ent. Fr. 2me. ser. iii. 457, 74 (1845).

Above pale olive green, more or less clouded and variegated with red, thickly and rather strongly punctured with black; sometimes entirely of a pale brick red. Scutellum with a large blackish or dark brown triangular patch at its base. Membrane hyaline, more or less clouded with brown. Body beneath and legs pale yellow; stigmata black. Antennæ concolorous with the legs at the base, becoming brownish towards the apex, with the apical joint pitchy brown. Length 4 lines.

In the male the anal plate is very small and not denticulated on its apical margin; in the female the basal plates are semicircular and larger than the apical; the intermediate plates smallest.



This species varies greatly in colour, but is easily distinguished from the other species of the genus by the form of its head, and by its having the projecting margins of the abdomen banded with black and yellow or orange. The green specimens generally have a reddish band across the posterior margin of the thorax, and the coriaceous portion of the elytra more or less tinged with red; the brown clouds of the membrane are frequently very indistinct.

This species is evidently the true *Cimex griseus* of Linnæus, both according to his descriptions and the specimens preserved in his cabinet. Nevertheless the name has been applied by most authors since his time to the *Cimex punctipennis* of Illiger, an insect of much larger size belonging to the genus *Rhaphigaster*. This error has probably arisen, in a great measure, from the careless manner in which Fabricius has given the synonyms of his *C. griseus*; for he quotes as belonging to that species the *C. griseus* of Wolff and Panzer, which represent *Rhaphigaster punctipennis*, and also the *Cimex Betulæ* of De Geer, which agrees precisely with the true *C. griseus* of the Linnæan cabinet. This error has been to a certain extent rectified by Amyot in the "Annales de la Société Entomologique de France," where he quotes *Cimex griseus* Fab., Wolff and Panzer as synonyms of *Raphigaster punctipennis*, stating particularly that it is not the same insect as the *Cimex griseus*, Linn., but afterwards again quotes them in giving the synonymy of the present species.

I have placed the *Cimex interstinctus*, Linn., as a synonym of this species, although the insect to which that name is attached in the Linnæan cabinet is a specimen of *A. dentatum*; for Linnæus states particularly in the *Fauna Suecica* that the margins of the abdomen are banded with black, which is the case in no species except *A. griseum*. The description given by Linnæus in the above work agrees precisely with specimens of *A. griseum* in the British Museum collection, but cannot by any means be made to suit the insect to which the name is attached in his own.

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